

Appendix 2: Forward Trajectories

Draxler, R.R. and Rolph, G.D., 2003. HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) Model access via NOAA ARL READY Website (<http://www.arl.noaa.gov/ready/hysplit4.html>). NOAA Air Resources Laboratory, Silver Spring, MD.

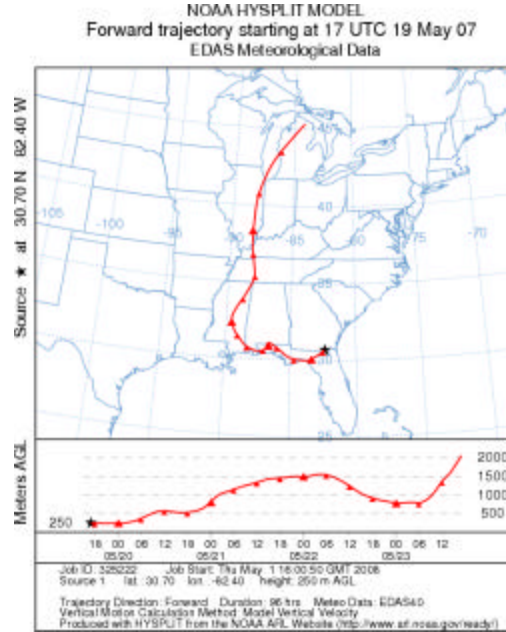


Figure A2.1: A forward trajectory originating from Georgia near the Bugaboo fire on 5/19/07 at 12:00 PM EST showing the air mass passing by Indiana through the night of 5/22/07 to 5/23/07.

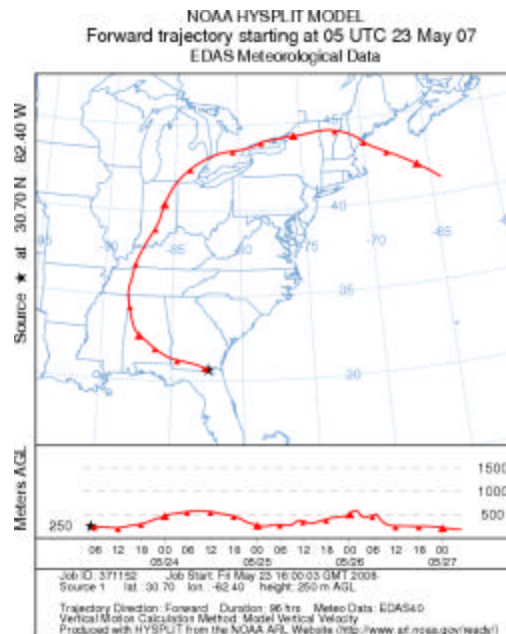


Figure A2.2: A forward trajectory originating from Georgia near the Bugaboo fire on 5/23/07 at 12:00 AM EST showing the air mass passing Indiana during the day of 5/24/07.

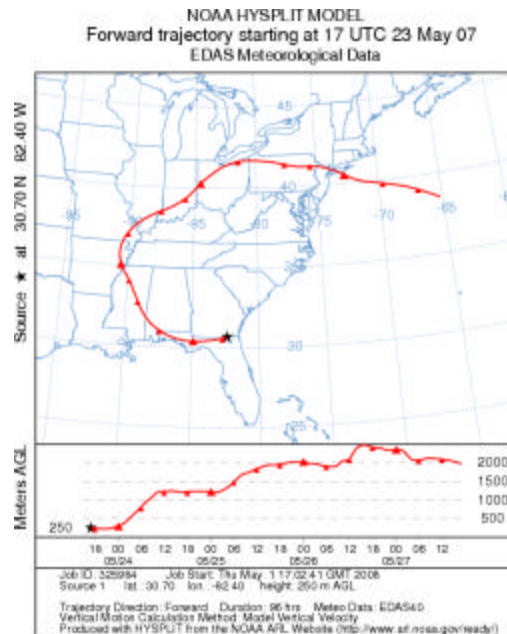


Figure A2.3: A forward trajectory originating from Georgia near the Bugaboo fire on 5/23/07 at 12:00 PM EST showing the air mass passing over Indiana during the day of 5/25/07.

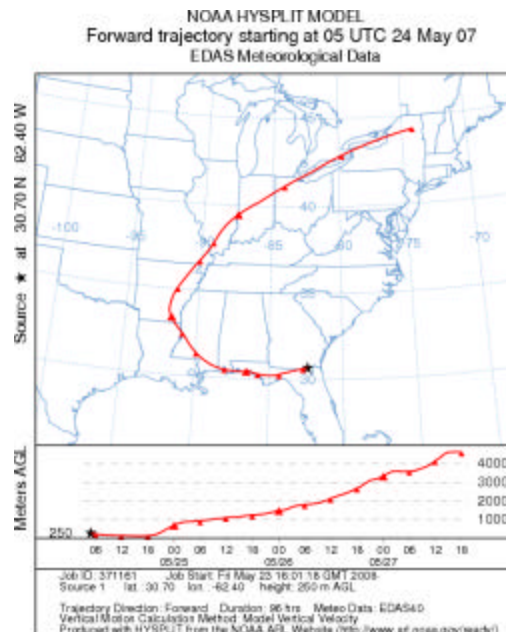


Figure A2.4: A forward trajectory originating from Georgia near the Bugaboo fire on 5/24/07 at 12:00 AM EST showing the air mass passing over Indiana during the day of 5/26/07.

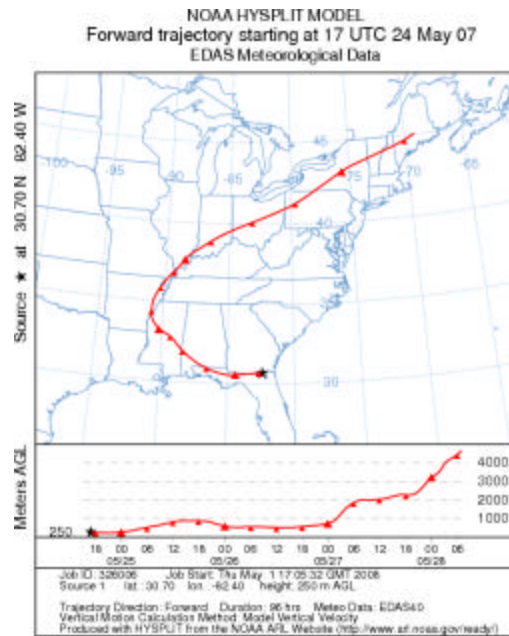


Figure A2.5: A forward trajectory originating from Georgia near the Bugaboo fire on 5/24/07 at 12:00 PM EST showing the air mass passing southern Indiana during the morning of 5/27/07.

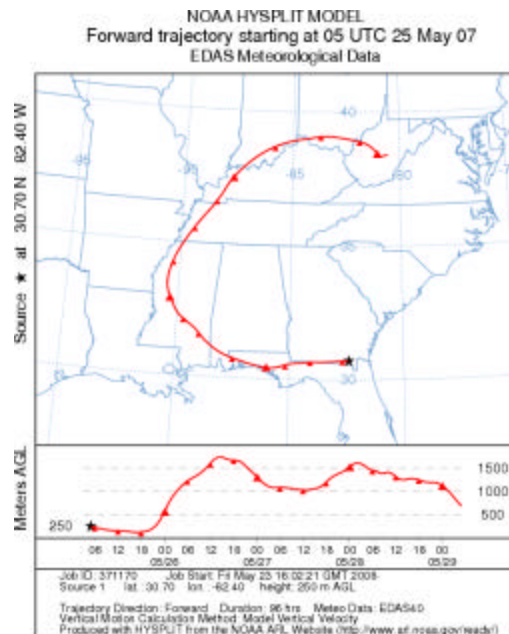


Figure A2.6: A forward trajectory originating from Georgia near the Bugaboo fire on 5/25/07 at 12:00 AM EST showing the air mass passing southern Indiana during the night of 5/27/07 to 5/28/07.



Figure A2.7: A forward trajectory originating from Georgia near the Bugaboo fire on 5/27/07 at 12:00 AM EST showing the air mass passing over southern Indiana during the day on 5/29/07.



Figure A2.8: A forward trajectory originating from Georgia near the Bugaboo fire on 5/28/07 at 12:00 AM EST showing the air mass passing near Indiana during the day on 5/30/07.

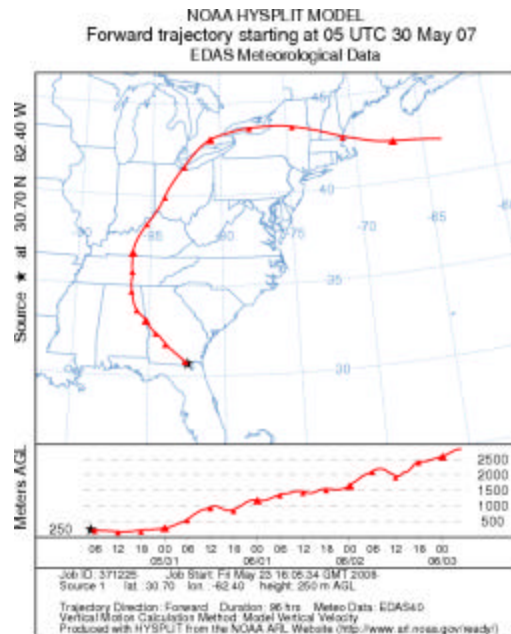


Figure A2.9: A forward trajectory originating from Georgia near the Bugaboo fire on 5/30/07 at 12:00 AM EST showing the air mass passing near southeastern Indiana during the night of 5/31/07 to 6/1/07.



Figure A2.10: A forward trajectory originating from Georgia near the Bugaboo fire on 5/30/07 at 3:00 PM EST showing the air mass passing near southeastern Indiana during the night of 6/1/07 to 6/2/07.

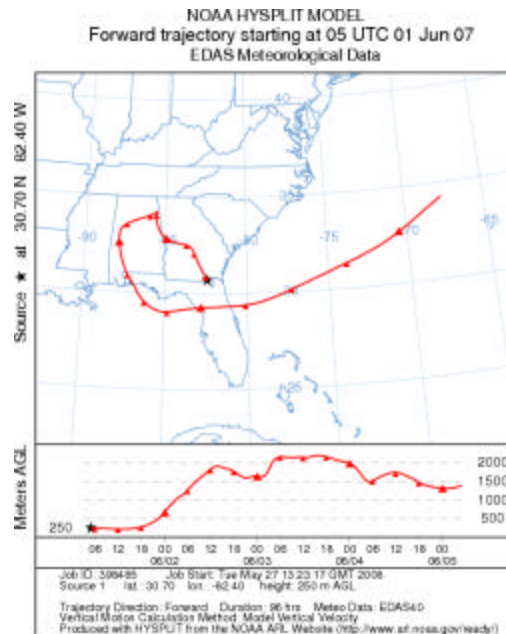


Figure A2.11: A forward trajectory originating from Georgia near the Bugaboo fire on 6/1/07 at 12:00 AM EST showing the air mass shifting out of the Midwest in early June.

About HYSPLIT (from: <http://www.arl.noaa.gov/ready/hysplit4.html>)

The HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) model is the newest version of a complete system for computing simple air parcel trajectories to complex dispersion and deposition simulations. As a result of a joint effort between NOAA and Australia's Bureau of Meteorology, the model has recently been upgraded. New features include improved advection algorithms, updated stability and dispersion equations, a new graphical user interface, and the option to include modules for chemical transformations. Without the additional dispersion modules, Hysplit computes the advection of a single pollutant particle, or simply its trajectory.

The dispersion of a pollutant is calculated by assuming either puff or particle dispersion. In the puff model, puffs expand until they exceed the size of the meteorological grid cell (either horizontally or vertically) and then split into several new puffs, each with it's share of the pollutant mass. In the particle model, a fixed number of initial particles are advected about the model domain by the mean wind field and a turbulent component. The model's default configuration assumes a puff distribution in the horizontal and particle dispersion in the vertical direction. In this way, the greater accuracy of the vertical dispersion parameterization of the particle model is combined with the advantage of having an ever expanding number of particles represent the pollutant distribution.